

SECRET

Approved For Release 2003/10/07 : CIA-RDP81B00879R001000090112-2

arc 3601
Copy 5 of 5

20 JUN 1962

MEMORANDUM FOR THE DIRECTOR

SUBJECT: Trip Report (WEATHER and SAC Operations, 14 June 1962)

25X1A

1. The primary objectives of the trip were to:
 - a. Visit Weather Central to determine the extent of assistance available in the Electronic Data Processing (EDP) field.
 - b. Visit SAC Operations people (on an informal, personal basis) to determine the nature of their EDP flight planning program and its availability.
2. Weather Central
 - a. Personnel contacted were:

Col. C.A. Spohn, Chief, WECHS
Lt. Col. A. Rogers, GIC Computer Programming
Lt. Col. J.J. Allen, Chief, Special Projects
Maj. J. Smith, Major Wise's planned replacement
 - b. Equipment
 - (1) IBM 7090: This is their major computer with a 32,000 instruction storage capacity.
 - (2) IBM 1401: This is a small computer of 4000 instruction capacity and is an auxiliary to the 7090.
 - c. Capabilities
 - (1) Their EDP program incorporates all the tremendous number of reporting sources, plus many other inputs and produces a weather forecast (climatological or actual) within fifteen minutes.

USAF review(s) completed.

25X1

Approved For Release 2003/10/08 **SECRET** DP81B00879R001000090112-2

~~SECRET~~

(a) Present data is available to 50%, but expansion of their program is in process to go to 70% and eventually to 100%.

(b) Presently extrapolation is used to reach altitudes of interest to SWB programs.

(c) Wind information is limited to 20%, world coverage.

(2) Mechanics of Transmission

(a) A request to WECAN may be in the form of TTY, phone voice, or placed on TTY cable by cutting a paper tape on an IBM 067 (\$160.00 per month). This TTY circuit will produce a paper tape at WECAN. This tape is then used in an IBM 061 (\$125.00 per month) to produce IBM cards which are input for either IBM computer.

d. Specific Points of Interest

(1) WECAN outputs for flight planning are flight level winds and temperatures. These are usually produced in 250 MI increments but are available in any desired distances.

The outputs, usable in FLICP (Flight Planning) is in the form of a deck of IBM cards furnished to the Operations Planners.

The usual sequence of planning is:

- (a) Route is developed by SAC Operations, no wind.
- (b) Retro climatology (historical data) is furnished by WECAN's Computer Program (within fifteen minutes).
- (c) SAC Ops applies climatology to the no wind flight plan for feasibility.
- (d) Ops requests forecast type retro prior to execution to apply to the retro flight plan.

~~SECRET~~

(2) WECH is programmed to accept large volumes of requests for flight planning weather information and is producing machine runs of SAC Ops flight plans with astro weather applied (see Attachment #1).

(3) Colonels Allen and Rogers both strongly recommended that a flight planning program be planned for a computer of the 7090 size rather than to accept the limited size of a machine such as a 1461. Further growth in fields such as command and control or intelligence would probably be restricted unless a machine of sufficient capacity was chosen initially.

(4) Standard day temperatures are used in SAC's FLIP. Programming is now possible to insert climatological temperatures into the planning program to give a more accurate basis on which to base elapsed time. This point was strongly recommended by Col. Allen.

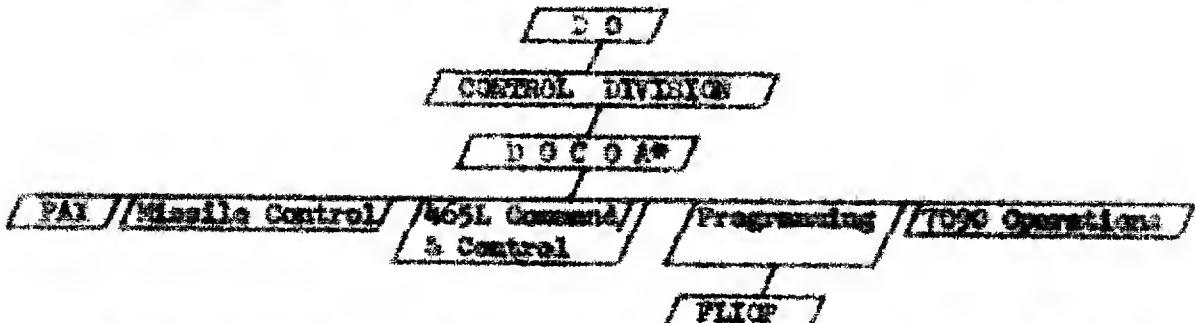
(5) Col. Allen offered programmer assistance by Air Weather Service and urged we consider an early meeting in our area to discuss this. He recommended Capt. Earl Hindell at Weather Service Headquarters as being available for use in initial programming assistance. None of this assistance would be available on an extended time basis, however.

3. SAC Operations

a. Personnel contacted were:

Lt. Col. Buckley, OIC Programming
Captains Sills and Hughes, FLIP Programmers

The location of these people in the chain of command is as follows:



* Directorate of Operations, Control Division, Automation Branch.

~~SECRET~~

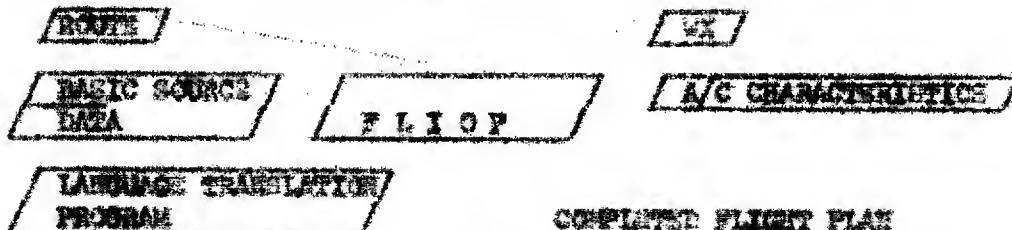
the actual detailed flight plans for all the various divisions (C-0 or peacetime) are produced by the "FLICP Section" within the Programming Section.

b. Capability

(1) The original FLICP (then FLCP) which was developed in 1959 with RAND assistance has been modified extensively to suit specific SAC requirements. During this period considerable logic detail has been lost, and the degree of dependence on personal knowledge and familiarization with the program by the three men involved is disturbing.

(2) The result of the FLICP machine program is a detailed flight plan as illustrated by Attachment #2. The base program accepts input variables of:

- (a) Aircraft performance parameters.
- (b) Routes.
- (c) Weather.
- (d) Expendables.
- (e) Profile (speed and altitude - optimum/low)
- (f) Refueling information.



(3) Presently SAC flight plans the following:

B-52
B-47
B-58
KC-135
KC-97
A-43

~~SECRET~~

~~SECRET~~

4. Trip Conclusions

- a. Weather inputs are available and present no problem - either from climatology, wind/temperature, or visibility conditions.
- b. The FLIGP program is extremely sophisticated to fit SAC's requirements. The logic background is not readily available and considerable programming effort will be required to adapt (simplify) FLIGP for our use.
- c. Access to both WDCW and SAC Operations is no problem (on the working level). Capt. Bills invited us to come for a week and he would teach us to create KC-135 flight plans!
- d. The FLIGP program is written in IBM 7090 language, and if a 7090 is not available it would have to be rewritten for any other computer.
- e. The "Principle of Growth" must be accepted. When computer capability is established, additional valuable capabilities are developed in such areas as intelligence, weather, and control. Machine capacity should be such a size to accept this growth.

5. Recommendations

- a. An EDP Section be established within the CXCANT Operations Branch. Three people should be assigned to this branch as follows:
 - 2 EDP machine programmers.
 - 1 Operations Staff Officer.
- b. Recruitment of the programmers should be commenced at once. It is strongly recommended that 1/Lt. Robert E. Bruno be considered as he is completing 3 years at SAC in FLIGP and is Mr. FLIGP at present. He is presently job hunting in the East (desires to live on East coast) and can probably command a salary of approximately \$700.00/month. If he could be made available, our CXCANT programming problem is solved and the continuation and operation of the EDP program will be assured.
- c. Location of computer facilities is of course of primary consideration and IBM 7090 should be our first consideration. RCA 490 facilities can be used with reprogramming. IBM 1401 will

~~SECRET~~

SECRET

restrict us and should not be considered for the basic FLICP program.

25X1A

4. [] should now be establishing the exact format of the information they will require for staff and pilot use. It must be remembered that the basic program should be written to accept format changes as we learn.

e. Time phasing must consider the following:

Recruitment of programmers	90 days	3 months
Program Rewriting		5 months
Final Phase testing and CPX		
type activity		2 months
TOTAL:		<u>10 months</u>

It may be seen that programming action must be initiated shortly if an EDP capability is to be in place 1 April 1963.

SECRET

[]
EDP/SPD/AMC

25X1A

25X1A

EDP/SPD/[] (19 June 62)

Distribution:

1 - EDP/SPD
2 - AC/EDP
3 - EDP/MX
4 - EDP/DR
5 - EDP/RT

SECRET